Lockheed Martin Delivers Flight Control Room To NASA

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Lockheed Martin Space Operations has turned over another new flight control room to NASA, the third in the last six years. The latest addition to the NASA Johnson Space Center, the Training Flight Control Room (TFCR), is patterned after the two functionally identical flight control rooms (FCRs) in the Mission Control Center. NASA and contractor flight controllers use these rooms to support space shuttle and space station missions, simulations and testing.

Up until now, the two FCRs supported both NASA mission and training needs for both the space shuttle and space station, while support of the first two space station modules was conducted from a temporary location with very limited capability. But, with the successful docking of Russia's Zvezda Service Module with International Space Station (ISS), flight controllers at JSC will be supporting ISS 24 hours a day. . . meaning that the ISS FCR won't be available for training anymore.

That's why NASA needed the new Training Flight Control Room. Over the next 14 months, traffic to and from the station will pick up dramatically as construction crews piece together a half million pounds of hardware -- or 85 percent of the U.S. side of the station. But, before any of this high-tech assembly work occurs in space, ISS components will be "assembled" virtually over and over again in simulations ... conducted in the new TFCR.

"Since our people have already built two world-class flight control rooms for NASA, one might be tempted to greet the news of us building a training FCR with a big yawn," said Doug Tighe, vice president and program manager of Lockheed Martin Space Operations' Consolidated Space Operations Contract (CSOC). "But, in many respects, this was probably the team's toughest challenge yet. We had to take a storage area, projection room and project office located behind the historic flight control room used in the Apollo program and transform that space into the TFCR in just six months. That's really operating at warp speed."

Key to the CSOC team's ability to deliver a mission success from what at one time seemed a mission impossible was its experience in developing the two FCRs in the Mission Control Center. They followed the same script, using commercially available hardware that runs on software that they had already developed for NASA. Using industry parlance, this computer equipment is called COTS (commercial off-the-shelf), which will spell big savings for NASA over the life of the flight control room.

For example, the new high tech projectors in the TFCR cost about 80 percent less than the old technology units formerly used. Even better, they will pay for themselves in less than a year. Those old-tech projectors worked fine, but the red, blue and green CRT assemblies in them had to be replaced -- about two of them each year per projector -- at more than the cost of a brand new projector. (The two operational FCRs have also been upgraded with the new projectors.)

The CSOC team provided program management, facility design, systems engineering and hardware support for NASA on the TFCR project. And, according to them, if NASA ever needs to have a third operational flight control room at JSC, it will only take some modest upgrades to the TFCR to fill that bill as well.

Lockheed Martin Space Operations, a business unit of Lockheed Martin Technology Services headquartered in Cherry Hill, New Jersey, is a high-tech engineering and science services firm employing more than 4,000 engineers, scientists and support personnel. Services include managing CSOC; software and hardware engineering for the Space Shuttle and International Space Station; mission operations and planning systems design, development, and integration; and human life sciences research.

SOURCE: Lockheed Martin Space Operations